Appendix A. Web Service Standardization

This appendix contains a listing of many of the better known standardization efforts (by category) currently being pursued that relate to web services in some way. A brief description is offered, but complete information is available through the information links provided.

A.1 Packaging Protocols

SOAP/XML Protocol

Originally an acronym for the "Simple Object Access Protocol," now the basis for the W3C XML Protocol effort.

Version 1.1 of the specification is available at http://www.w3.org/tr/soap. The Version 1.2 working draft is available at http://www.w3.org/tr/soap12.

More information about SOAP and the W3C XML Protocol effort can be found by visiting the W3C XML Protocol working group home page at http://www.w3.org/2000/xp/.

XML-RPC

The original manifestation of SOAP invented by Dave Winer of Userland software. This simple, popular protocol—while not officially a standard—has a significant, vocal user base in the open source community. Information is available at http://www.xmlrpc.org/.

Jabber

Jabber is both a transport protocol and a simple packaging protocol that can be used in asynchronous peer-to-peer style web services. It too is not an official standard but is building a significant user and developer base. Information can be found by visiting the Jabber home page at http://www.jabber.org/.

DIME

The Direct Internet Message Encapsulation (DIME) protocol is "a lightweight, binary encapsulation format that can be used to encapsulate multiple application defined entities or payloads of arbitrary type as well as to provide efficient message delimiting." More information is available at http://www.gotdotnet.com/team/xml_wsspecs/default.aspx.

A.2 Description Protocols

WSDL

The Web Service Description Language is the de facto standard language for describing web services. It has been submitted to the W3C for standardization and a

working group is being organized. WSDL replaces the previous description proposals put forth by IBM and Microsoft (NASSL and SDL respectively).

Version 1.1 of the WSDL specification can be found at http://www.w3.org/tr/wsdl.

DAML-S

The DARPA Agent Markup Language Ontology for web services is an academic research project for semantically describing web services. Information can be found by visiting the DAML-S home page at http://daml.semanticweb.org/.

RDF

There has been some discussion around the fact that RDF could have "very easily" been used as a method of describing web services. Several examples have cropped up, including a demonstration of how WSDL could be modified to conform to RDF syntax. DAML-S is another example that is built completely on top of RDF. Information is available at http://www.w3.org/rdf.

A.3 Discovery Protocols

UDDI

The Universal Description, Discovery, and Integration initiative promises to define a standard service registry. Information can be accessed at http://www.uddi.org/.

WS-Inspection

The Web Service Inspection Language provides an XML index for discovering the services available at a given network location. See http://www-106.ibm.com/developerworks/webservices/library/ws-wsilspec.html.

ebXML Registry

Part of the ebXML effort (http://www.ebxml.org/) was to define a standard registry model for discovering business services. The approach is somewhat different, but not incompatible with UDDI, and includes many more types of information than UDDI does.

JXTA Search

The Sun-sponsored JXTA peer-to-peer services infrastructure defines a distributed search protocol for discovering content and services in a peer-to-peer architecture. Information is available by visiting http://www.jxta.org/project/www/white_papers.html.

A.4 Security Protocols

XML Digital Signatures

A joint W3C and IETF effort to define a standard method of representing digital signatures as XML content (http://www.w3.org/Signature/).

XML Encryption

A W3C effort to define a standard way of both encrypting XML content and representing encrypted data as XML content (http://www.w3.org/Encryption/2001/).

SAML

The Security Assertions Markup Language, being developed under the auspices of Oasis (http://www.oasis-open.org/committees/security/).

XKMS

The XML Key Management Service is a web service specification submitted to the W3C for implementing a service-based public key infrastructure. The XKMS specification is available at http://www.w3.org/tr/xkms, and additional information is at http://www.xkms.org/.

XACML

An effort to define a standard access control mechanism for XML documents (http://www.oasis-open.org/committees/xacml/).

WS-Security and WS-License

These are two proposals from Microsoft defining how to carry authentication, encryption, and digital signatures within a SOAP Envelope. These specifications are used primarily by in Microsoft .NET and the .NET My Services (Hailstorm). As they have not yet been submitted to a standards body, they should be considered proprietary to Microsoft.

SOAP Security Extensions

Initially worked on as a joint effort between IBM and Microsoft, these specifications define how to carry authentication, encryption, and digital signatures within a SOAP Envelope. The Digital Signatures portion of the specification has already been submitted to the W3C with the encryption and authentication parts soon to be released and submitted. Currently, IBM's Web Services ToolKit is the only known available implementation of the SOAP Security Extensions.

A.5 Transport Protocols

HTTP

The most common transport used for web services.

Jabber

A new, XML-based asynchronous transport protocol used most frequently in peer-to-peer style applications (http://www.jabber.org/).

BEEP

A new XML-based transport protocol being worked on by the IETF that claims a duplexed connection and asynchronous transport (http://www.bxxp.org/).

Reliable HTTP (HTTPr)

A new version of HTTP proposed by IBM for adding reliable messaging support to the venerable HTTP protocol. An overview and link to the specification is available at http://www-106.ibm.com/developerworks/webservices/library/ws-phtt.

A.6 Routing and Workflow

WSFL

The Web Services Flow Language provides a WSDL-based grammar for scripting business processes out of web services (http://www.ibm.com/developerWorks/webservices).

XLANG

Microsoft's own workflow scripting language for web services (http://msdn.microsoft.com/webservices).

WS-Routing

A Microsoft proposed mechanism for defining the route that a SOAP message must take through various intermediaries (http://msdn.microsoft.com/library/en-us/dnsrvspec/html/ws-routing.asp).

A.7 Programming Languages/Platforms

JAXP

Java API for XML Parsing is the Java Community Process (JCP) effort to standardized XML API's in Java (http://java.sun.com/xml/jaxp.html).

JAX-RPC

Java API for XML RPC is the JCP effort to standardized Java API's for using web services (http://java.sun.com/xml/jaxrpc.html).

JAXR

Java API for XML Registries is the JCP effort to define Java API's for discovery registries such as UDDI (http://java.sun.com/xml/jaxr/index.html).

JAXM

Java API for XML Messaging is the JCP effort to define Java API's for XML messaging (http://java.sun.com/xml/jaxm/index.html).

JSR-109

JCP effort to define how web services are to be integrated into the Java 2 Enterprise Edition architecture.

JSR-105

JCP effort to create standard Java API's for XML digital signatures (http://www.jcp.org/jsr/detail/105.jsp).

JSR-106

JCP effort to create standard Java API's for XML encryption (http://www.jcp.org/jsr/detail/106.jsp).

JSR-110

JCP effort to define a standard Java API for WSDL (http://www.jcp.org/jsr/detail/110.jsp).

Any relevant efforts that may be missing from this list are an oversight on the authors' part, and not a reflection on the merit or importance of the work.